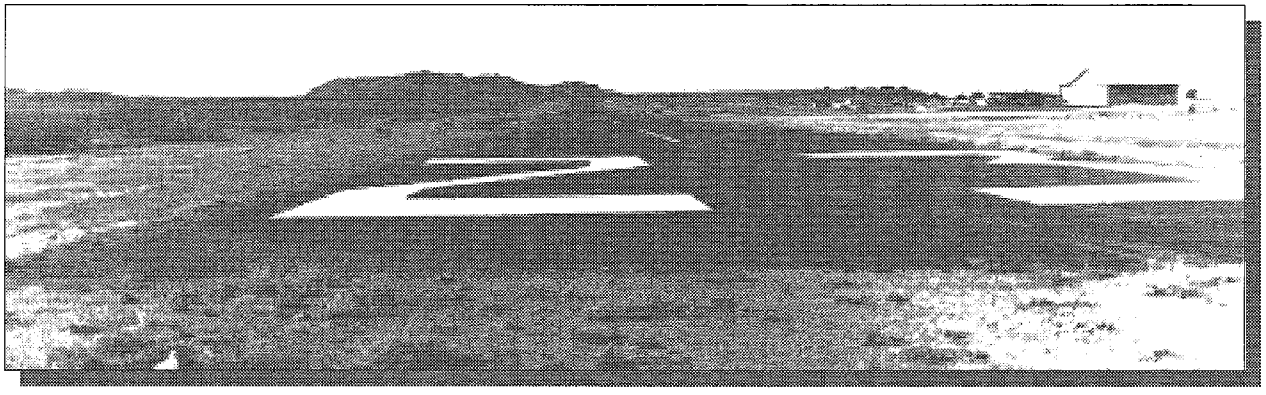


View to the southwest from Runway 23 end

2.1 INTRODUCTION

The inventory serves as the foundation for completing subsequent elements of the master plan. This Master Plan Update uses information contained in the previous 1982 Airport Master Plan and updates that information, where appropriate, with regard to changes and improvements that have occurred. Additionally local, state, and national sources were used to provide updated information representing airport conditions through the year 1997, which is the base year for the plan (no significant changes have occurred between 1998 and 1999). This chapter contains a summary of past airport development, a description of the airport's physical facilities (airside and landside), area airspace and brief overviews of the historic socioeconomic trends.

2.2 HISTORICAL REVIEW

The Town of Bagdad, an unincorporated community, is in west central Arizona nestled in the hills of the Aquarius Mountains and near the western boundary of Yavapai County. The local governing body is the Yavapai County Board of Supervisors. The county seat, Prescott, is located 62 highway miles east of Bagdad. Phoenix is the closest major metropolitan area, located 120 miles southeast of Bagdad.

Bagdad started out as a mining community. Mining operations in Bagdad began in the early 1880's. In the late 1930's, a landing strip was constructed to provide air access for the mining operations. Continued growth in area mining and the community drove the development of the airport to include projects[1] such as:

Year	Project Description
1950*	Runway grade and drain; access road and apron grade and drain
1967*	Runway, taxiway, and apron extension and paving
1979*	Aircraft parking apron construction

[1] *Source: Bagdad Airport Grant History, Yavapai County Database*

Year	Project Description (Continued)
1981	Airport Master Plan; site soils investigation
1983	Runway seal and extension to its current length of 4,575 feet
1990	Main runway, taxiway and apron surfacing/ pavement preservation
1999	Runway crack seal

*Federal money partially funded project.

Today, Bagdad Airport, owned and operated by Yavapai County is located on the original landing strip approximately ¾ mile north of the Bagdad Community.

2.3 AIRPORT SETTING

The Bagdad Airport (located at 34°35'45.1" North, 113°10'12.7" West) is at an elevation of 4,183 feet mean sea level. Primary facilities at this 97-acre airport include one runway, two taxiway exits, two aircraft parking apron areas, two aircraft hangars, unpaved vehicle parking, and an unpaved access road.

2.3.1 Regional Transportation

Highways

Arizona State Routes 96 and 97 serve Bagdad. Truck transportation is provided by the interstate trucking companies and delivery services.

Railroads

The Santa Fe Railroad provides loading facilities in Hillside, 23 miles southeast.

Air

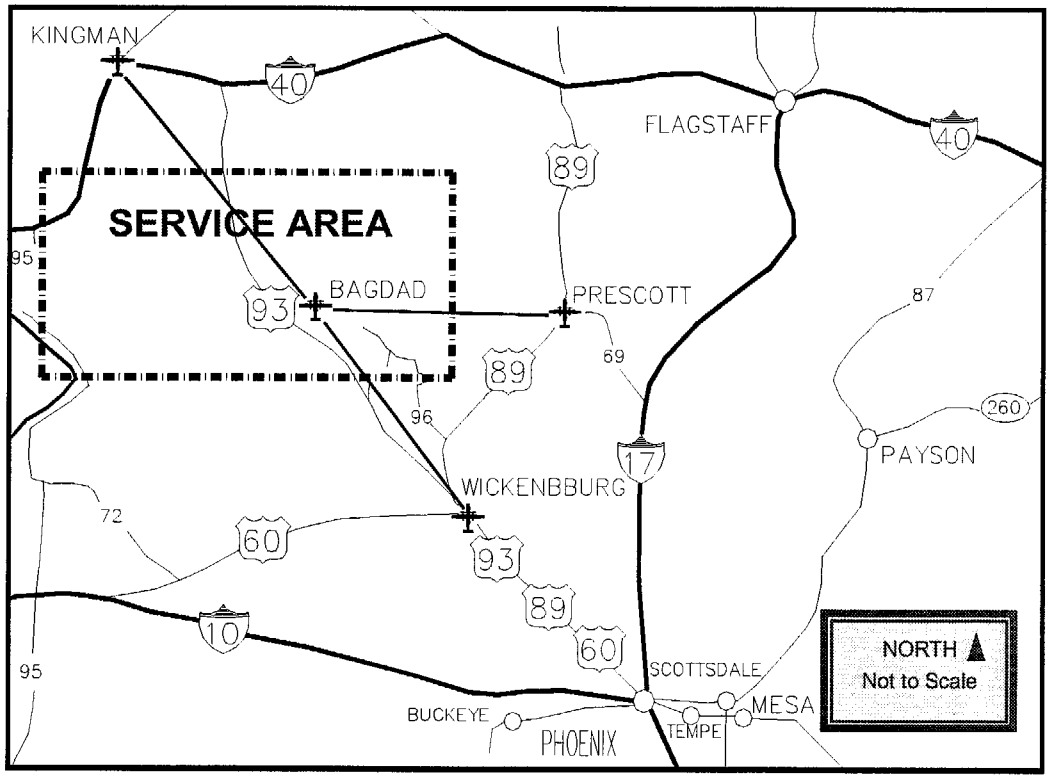
Small, privately owned aircraft are based at the airport. The closest air passenger service is in Prescott, Ernest A. Love Field, where flights to Phoenix and Kingman depart daily.

Most Bagdad residents travel to Phoenix Sky Harbor International Airport (approximately 85 miles SE) for air travel. Other airports located near Bagdad include: Kingman (approximately 55 miles NW) and Wickenburg (approximately 43 miles SE).

2.4 SERVICE AREA

The scope of this Master Plan limits data collection to the physical area designated as the Service Area. The Service Area covers approximately 1,600 square nautical miles.

The Service Area boundaries have been defined with respect to convenience in reaching other comparable aviation facilities near Bagdad Airport. Factors used in defining a comparable facility include runway length, navigational aids, tiedown space, and other ground facilities. Additional factors considered in determining convenience include mileage, prevailing highway speeds and traffic flow. Bagdad Airport is considered the primary airport for aviation demand within the designated area (see map below).



2.5 AIRPORT CHARACTERISTICS

The Federal Aviation Administration (FAA) currently defines three broad categories of aviation activity: General Aviation, Certified Air Carrier, and Military.

General Aviation is the largest and the most significant element of the national air transportation system. General Aviation aircraft account for approximately 98 percent of all aircraft in use today and 95 percent of all airports.

It is by no coincidence that general aviation has contributed to the socioeconomic phenomenon that has seen American industry move from the larger metropolitan areas to smaller communities. Smaller communities can offer industry lower taxes and labor costs, and closer access to raw materials and natural resources. General Aviation provides the time saving link for corporate travel that has made the shift to communities such as Bagdad Airport feasible.

Commercial Service Carriers are those airlines, which provide scheduled carriage of passengers and/or are licensed by the FAA. The nearest scheduled commercial air service to the local market is Prescott, Ernest A. Love Field, located approximately 40 miles east of Bagdad.

Military activities consist of operations performed by military designated aircraft and crew. Occasional military activity at the airport consists of Air National Guard training flights. There are no based military operators at the airport.

Bagdad Airport is defined as a **General Aviation (GA)** airport. The types of aircraft operations that occur at Bagdad Airport include business, instructional, and personal.

Based on a review of the type of aircraft operating at Bagdad Airport, the Aircraft Approach Category is B and the Airplane Design Group is I. This combination, B-I, forms the FAA

alphanumeric Airport Reference Code (ARC) for Bagdad. The approach categories and aircraft design groups, defined in FAA Advisory Circular 15/5300-13, Airport Design, are summarized in **Table 2-1** as follows:

Furthermore, considering FAA guidelines for airports in Approach Categories A & B and within Design Groups I and II, the existing Bagdad runway, at the length of 5,130 feet, can serve more than 75 percent but less than 95 percent of the small aircraft fleet. This is based on a temperature of 95^0 (degrees) Fahrenheit and an elevation of 4,827 feet.

Table 2-1 Airport Reference Code

Aircraft Approach Categories		**Aircraft Design Groups**	
Category	Approach Speed	Group	Wingspans
A	Less than 91 knots	**I**	**up to but not including 49 feet**
B	**91 knots or more but less than 121 knots**	**II**	49 feet up to but not including 79 feet
C	121 knots or more but less than 141 knots	**III**	79 feet up to but not including 118 feet
D	141 knots or more but less than 166 knots	**IV**	118 feet up to but not including 171 feet
E	166 knots or more	**V**	171 feet up to but not including 197 feet
		VI	197 feet up to but not including 262 feet

2.6 AIRPORT CLASSIFICATION

An airport can be classified by various airport elements such as types of aircraft operations, airport role, aircraft performance, and aircraft physical characteristics. These classifications serve to identify the various development needs of the airport in later elements of the master plan.

Bagdad Airport's role is identified as a **General Utility – Stage I**. This airport classification is one of six defined by Arizona Department of Transportation (ADOT), Aeronautics Division to establish a system related to development standards and planning guidelines for Arizona's public-use airports.[2]

The six classification types are as follows:

- **New Emerging.** This category accommodates areas that demonstrate a need for an airport with minimum design standards to be utilized for general aviation, recreating, and/or emergency service
- **Basic Utility – Stage I.** This type of airport accommodates about 75% of small, single-engine and small twin-engine airplanes, used for personal and business purposes.

[2] *ADOT, 1995 Arizona State Aviation Needs Study, pg 3-13*

- **Basic Utility – Stage II.** This type of airport serves all the airplanes in Stage I, plus some small business and air-taxi-type twin-engine airplanes.
- **General Utility – Stage I.** This type of airport accommodates all small airplanes. This airport is also designed for small airplanes in Airplane Design Group I.
- **General Utility – Stage II.** This type of airport serves large airplanes in Aircraft Approach Category A and B and designed for Airplane Design Groups I and II.
- **Commercial Service.** An airport with regularly scheduled airline service.

2.7 EXISTING FACILITIES

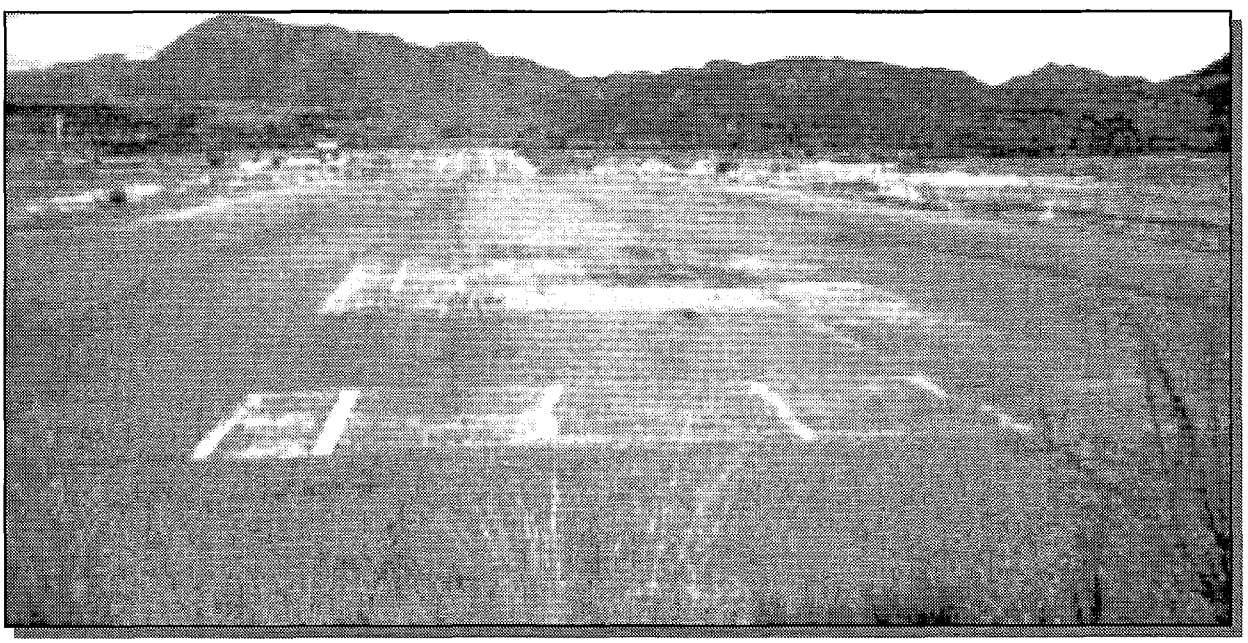
The following is an inventory of airside and landside facilities at Bagdad Airport. This inventory is an important planning tool used in conjunction with forecasts of aviation demand to determine future airport needs.

2.7.1 Airside

Airside facilities are those which are directly associated with aircraft operating to and from the airport. Runways, taxiways, navigational aids, and airport lighting are examples of Airside Facilities. **Exhibit 2-1** illustrates the existing facilities at Bagdad Airport.

Runways

Bagdad Airport has one visual approach runway, identified as Runway 05-23, with dimensions of 60 feet by 4,550 feet. Runway 05-23 is asphalt, in fair condition, and with an estimated weight bearing capacity of 4,000 lbs single wheel gear (SWG).



Runway 05 end view to the west

Taxiway Exits

There is no parallel taxiway to the runway. Runway 05-23 has two connecting taxiway exits, one to each aircraft apron area. The westernmost taxiway exit connects to the main aircraft parking apron and is composed of asphalt in fair to poor condition measuring 30 feet wide by 230 feet long. The easternmost taxiway exit connects to a secondary parking apron and is composed of asphalt in fair condition measuring 35 feet wide by 100 feet long.

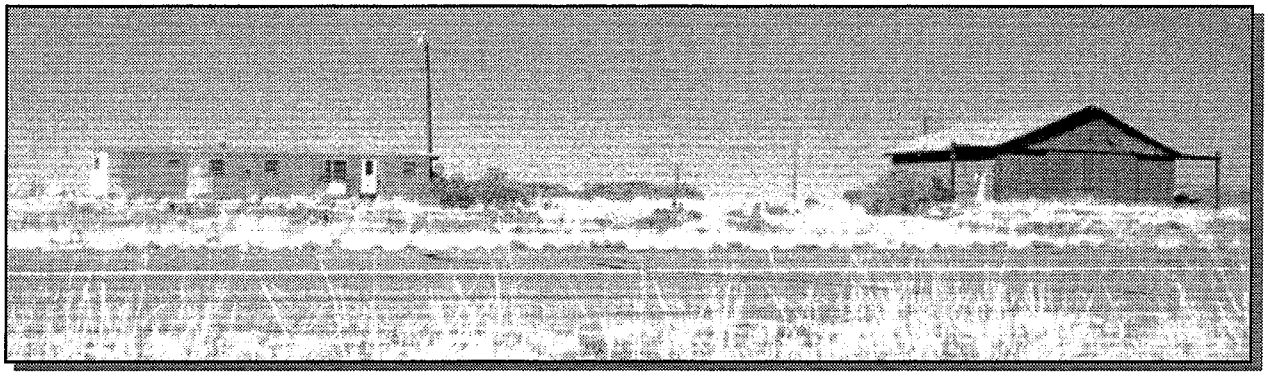
Marking, Lighting and Navigation Aids

Runway 05-23 is marked as a visual runway and was repainted in November 1998. There are no markings on the taxiways or aprons.

Runway 05-23 has a non-standard (not FAA-approved) low intensity runway lighting (LIRL) system. Some of the lights are inoperable and improperly located. There are no lights on the aircraft parking apron or on the taxiway exits.

The Bagdad Airport is a visual airport with a rotating green and white beacon that operates from sunset to sunrise. Windsocks are located near both runway ends.

The Drake VORTAC located near Prescott Love Field also offers navigation assistance to aircraft in the Bagdad vicinity. Aircraft operators contact Prescott for traffic information as Bagdad is without an air traffic control tower. Bagdad Airport operators use Prescott's flight service station and Albuquerque's Air Route Traffic Control Center (ARTCC).



Trailer and private hangar location to the north

2.7.2 Landside Facilities

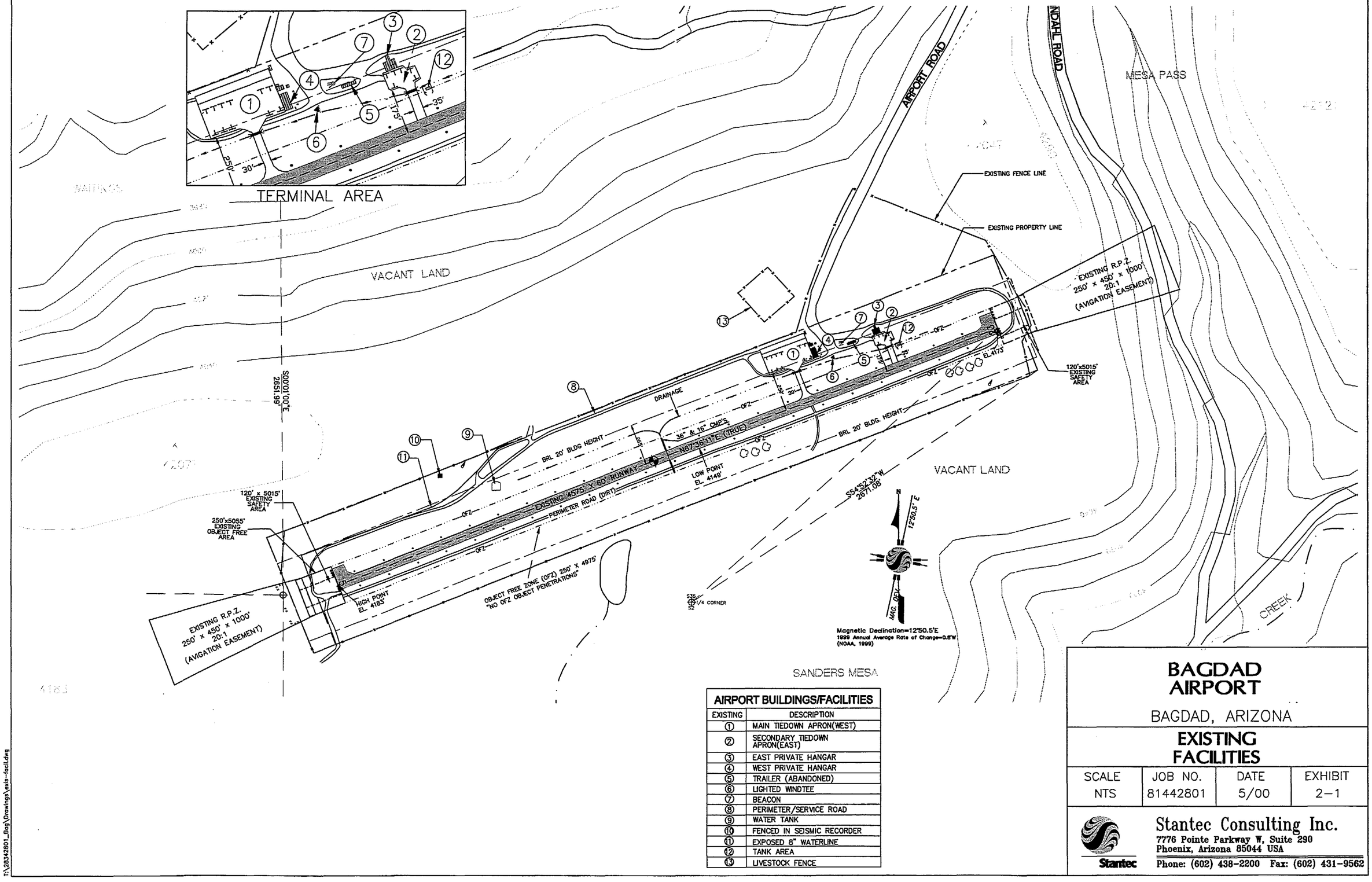
Landside facilities consist primarily of facilities required to accommodate aircraft, passengers and pilots while they are at the airport. Landside Facilities typically consist of terminal buildings, hangars, fuel storage and automobile parking.

Terminal

Bagdad Airport does not have a terminal facility or any aircraft and pilot services available to transient aircraft. The airport is unattended and existing hangar facilities are privately owned.

Aircraft Storage / Hangars

There are two aircraft storage hangars on the airport. One is approximately 50 feet wide by 60 feet in length (6,700 SY) and the other is approximately 30 feet wide by 40 feet in length (720 SY). Both hangars are privately owned and in fair to poor condition.



AIRPORT BUILDINGS/FACILITIES	
EXISTING	DESCRIPTION
①	MAIN TIEDOWN APRON(WEST)
②	SECONDARY TIEDOWN APRON(EAST)
③	EAST PRIVATE HANGAR
④	WEST PRIVATE HANGAR
⑤	TRAILER (ABANDONED)
⑥	LIGHTED WINDTEE
⑦	BEACON
⑧	PERIMETER/SERVICE ROAD
⑨	WATER TANK
⑩	FENCED IN SEISMIC RECORDER
⑪	EXPOSED 8" WATERLINE
⑫	TANK AREA
⑬	LIVESTOCK FENCE

BAGDAD AIRPORT

BAGDAD, ARIZONA

EXISTING FACILITIES

SCALE	JOB NO.	DATE	EXHIBIT
NTS	81442801	5/00	2-1

Stantec Consulting Inc.
7776 Pointe Parkway W, Suite 290
Phoenix, Arizona 85044 USA
Phone: (602) 438-2200 Fax: (602) 431-9562

T:\28342801_Bag\Drawings\exis-facil.dwg

Aircraft Parking Aprons

There are two paved aircraft apron areas. Both are located on the north side near the Runway 23 end.

The main aircraft parking apron (westernmost apron) serves transient and the majority of based aircraft and measures approximately 200 x 300 feet (6,700 square yards). The main apron is asphalt and has approximately 14 tiedowns. Furthermore, there are existing shades (partially constructed, but never completed) located on the north side of the apron. Tiedowns for both local and transient aircraft are co-located on this existing main apron

The second apron (easternmost apron) is also asphalt and measures approximately 65 x 100 feet (720 square yards). There are no marked tiedowns. The Forest Service primarily uses this apron for aircraft staging and loading of fire fighting equipment and fire retardant.

Perimeter Fence

The airport is completely enclosed by a 6-foot high chain link fence. There are two (2) manual gates, one is located at the main entrance of the airport and the other at the northwest side of the airport.

Airport Access

The airport access road starts from Lindahl Road and leads to the top of Sanders Mesa. It is unpaved and approximately 1.2 miles long. There are no airport directional signs in town, however there is an airport road sign at the intersection of Lindahl and Airport roads.

Automobile Parking

There is a dirt area (approximately 7,680 square feet) used for vehicle parking adjacent to the trailer on the north side of the airport. Based on comments from airport users, the existing parking area can hold approximately 22 automobiles and up to three large farming or construction trucks and equipment.

Air Traffic Control Tower (ATCT)

There is no ATCT at Bagdad Airport.

Automated Weather Observation System (AWOS) or Automated Surface Observation System (ASOS)

There is no AWOS or ASOS at Bagdad Airport. Weather data from Prescott Love Field is used for this master plan.

Fueling

There are no fueling facilities at Bagdad Airport. The closest aviation fueling facility is located at Prescott Love Field (approximately 40 miles east by air). However, the acting airport manager maintains an emergency fuel supply in his privately owned hangar.

Fixed Based Operators (FBOs)

While the airport is unattended and without a fixed base operator (FBO), there are services in the region that are accessible to airport users. However, the acting airport manager does occasionally perform contract maintenance on aircraft in his privately owned hangar.

Aircraft Rescue and Firefighting Facilities (ARFF) and Security

ARFF support comes from the Bagdad Fire Department based approximately 1.5 miles south of the airport at the bottom of the hill on Lindahl Road. The fire department is staffed with 31 volunteers on a 24-hour basis.

Security

There have been numerous incidents of human and wildlife incursions on the airfield, as well as reported theft and vandalism to based aircraft. Security and law enforcement are provided by the county's Sheriff's Department that has a small station in town staffed with three officers.

Utilities

- Electric: APS provides electricity to the town and the airport.
- Gas: Copper Market, Inc. supplies propane gas.
- Telephone: TableTop Telephone provides telephone service.
- Sewer and water: The airport is without sewer service, but does have a water supply from a water tank and a newly installed line on the property that is replenished and provided by Phelps Dodge Bagdad Inc.

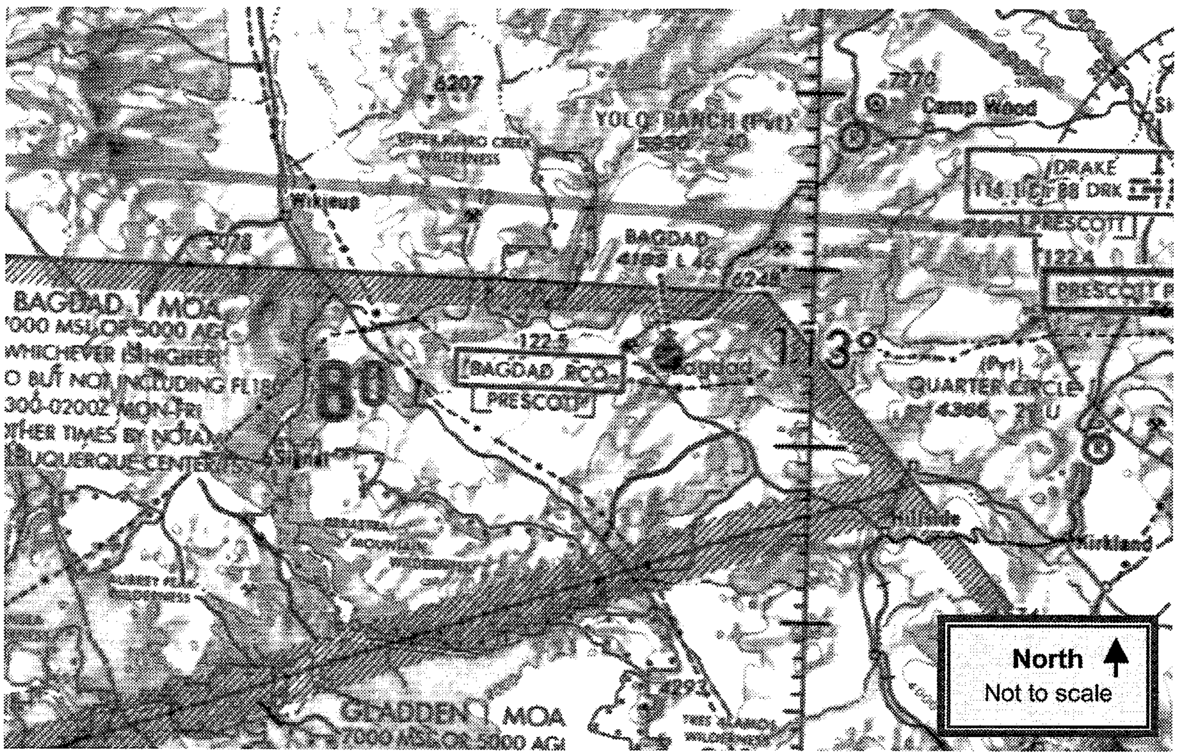
2.8 AIRSPACE AND AIR TRAFFIC ACTIVITY

This task included an inventory of airspace, procedures, and aircraft operations at the Bagdad Airport.

2.8.1 Airspace

The National Airspace System utilizes 40 years of technically engineered concepts in navigational equipment and air traffic procedures in the development of over 250,000 miles of marked airways above the Continental United States. **Exhibit 2-2** illustrates the current airspace for the Bagdad area. This illustration is an excerpt from the Phoenix Sectional Aeronautical Chart.

Exhibit 2-2 Airspace



LEGEND			Source: Phoenix Sectional, 1999
◆	Airport with hard-surfaced runways 1,500' to 8069' in length	8°	High Point Elevation
●- - - - -	Water ways (ex. Drainage, creek)	//////////////	Victor Airways
‖‖‖‖‖‖	Military Operations Area (MOA)	- - - -	Magnetic Deviation (13 degrees)

2.8.2 Airways

There are three route systems designed for air navigation purposes. Two of these systems, the Victor Airway System and the Jet Airway System, rely upon navigational aids to describe the centerline of a course (airway) for an aircraft to follow on its intended route of flight. The Victor Airway System, an airway network between 1,200 feet Above Ground level (AGL) and 18,000 feet Mean Sea Level (MSL) and the Jet Route System, from 18,000 to 45,000 feet MSL, provide the majority of the routes traveled by aircraft in the United States.

The **Victor Airway System** that affects Bagdad Airport is designated by the letter V and a number (V 12).

The **Jet Airway System**, layered above the Victor Airway System, is typically designated by the letter J. There are no Jet Airways designated within the Bagdad Airspace.

The third route system is the **Military Training Route (MTR)**. These routes are low altitude routes used by military aircraft in order to train pilots for various low-level military missions. The nearest MTRs are located approximately 90 miles NE near Flagstaff Pulliam Airport and oriented in a north-south direction.

2.8.3 Restrictions and Military Operations Areas (MOAs)

The Bagdad 1 MOA overlaps the Bagdad Airport area airspace. These areas are for military use and under FAR 73, *Subpart B – Restricted Areas*[3], military aircraft operations are restricted between the designated altitudes and during the time of designation. Other aircraft may enter the MOA above the restricted altitudes or with advance permission from a controlling agency and continual contact with Albuquerque ARTCC. This MOA does not conflict with Bagdad Airport operations, but like other MOA's, civilian traffic should be alert for possible military flights.

2.8.4 Air Traffic Pattern

The current traffic pattern at Bagdad is a standard left pattern with the majority of traffic (60%) landing on Runway 23 end, when winds permit. According to the Airport Facility Directory dated April 15, 2000, obstructions to Bagdad Airport airspace include a row of bushes along the southeast side of Runway 23 end. Also notable are unusual air currents experienced near the airport, especially off Runway 23 end.

2.9 AIRPORT-RELATED LAND USE

The 97-acre airport site is located on property owned by Yavapai County. The property was acquired through a quit claim deed form Phelps Dodge Bagdad Inc. dated March 21, 2000.

The land surrounding the airport belongs to Phelps Dodge Bagdad Inc. The land in the immediate area is classified as undeveloped, mining production, open-range or raw natural desert land with no apparent conflicts with residential dwellings.

[3] *FAR/AIM 99 – FAR 73, Special Use Airspace, pg. F-179*

2.10 SOCIOECONOMIC FACTORS

The purpose of this section is to provide the socioeconomic factors (i.e. population, employment) that are likely to have a significant impact on the demand for air transportation in the Bagdad Airport area.

2.10.1 Population

Population trends in Arizona have been extremely dynamic in the past decade. Historical populations for the Bagdad community, Yavapai County, and Arizona are presented in **Table 2-2**. Note: Phelps Dodge Mining Corporation provided population data for 1997 to reflect the most current number for the town of Bagdad.

Table 2-2 Historical Population Trends

	1980	1990	1997	Total Growth since 1980
Bagdad	2,349	1,858	2,500[1]	
AAG	--	-2.1%	4.9%	**6%**
Yavapai County	68,145	107,714	134,600	
AAG	--	5.8%	3.6%	**98%**
Arizona	2,716,546	3,665,228	4,462,300	
AAG	--	3.5%	3.1%	**64%**

[1]Local estimate only (Phelps Dodge); AAG = Average Annual Growth
1999 Bagdad Population from Department of Economic Security (DES) = 1,861
Source: AZ DES, Population Statistics Unit, 10/98

As shown, estimated population for Bagdad in 1997 reflects a total growth of approximately six percent since 1980. Yavapai County population has virtually doubled since 1980, and the State of Arizona's 1997 population is 64 percent higher than 1980 levels.

2.10.2 Economic Base

The economy of Bagdad is closely tied to the Phelps Dodge Bagdad Inc. (previously Cyprus Bagdad Mining Corporation) operations. In addition to mining, Bagdad's major economic activities also include education. The mining operations provide more than 480 direct jobs and the Bagdad School District nearly 80 employees,[4] creating indirect jobs in related support businesses including local hospitals, local governments, and retail stores.

[4] *Source: Chamber of Commerce, Community Profile July 30, 1998*

The copper mining industry has experienced a number of spiraling trends due to the dynamics of the copper market and regulatory factors. As a result of the community's reliance on mining, temporary or permanent unemployment has a significant and widespread impact. Despite fluctuating market conditions and the overall uncertainty of the industry, the copper mining industry is expected to continue as the primary employer in the area for the foreseeable future. Shown in **Table 2-3**, Bagdad employment has grown a modest 20 percent since 1980, which is higher than the estimated six percent growth in population since 1980.

Table 2-3 Historical Employment Trends

	1980	1990	1994[1]	Total Growth since 1980
Bagdad	925	907	1,107[2]	
AAG	--	-0.2%	5.5%	20%
Yavapai County	27,555	43,153	54,277	
AAG	--	5.7%	6.4%	97%
Arizona	1,156,000	1,700,000	1,862,000	
AAG	--	4.7%	2.4%	61%

[1] Most current data available for Yavapai County and Arizona
[2] Bagdad employment estimated (interpolated between 1990 and 1996 data).
[3]. AAG = Average Annual Growth
Source: AZ Department of Economic Security (DES), U.S. Census Bureau

2.11 CLIMATE

Weather plays an important part in planning an airport facility. Temperature is critical in determining runway lengths. When other conditions (pressure and humidity) remain the same, an aircraft requires a longer takeoff run as the temperature increases. Prevailing wind direction and intensity affect runway orientation. Ceiling (height of cloud coverage) and visibility data are used in determining the need for specific instrument navigational aids.

The Bagdad community experiences approximately 350 days of Visual Flying Rules (VFR) with 50-mile visibility, clear skies and light surface winds. Situated approximately at 4,183 feet MSL, the town enjoys moderate winters and warm summers.

According to the National Weather Service, conditions for the Bagdad area are observed from Prescott, which is the closest weather observation site. Prescott is about 40 miles east at 5,042 feet in elevation.

During August, the maximum daily temperature at Prescott is over 90 degrees Fahrenheit. Precipitation is light and winds are usually under ten miles an hour. During periods of thunderstorm activity in July and August, winds may sometimes reach peak gusts of 20 miles per hour or more. There are occasional periods of low visibility, due to rain and low ceilings during storm passage. **Table 2-4** shows climate data from Prescott readings.

Table 2-4 1998 Weather*

Month	Average Temperature (°F) Daily Max.	Daily Min.	Average Total Precipitation (inches)	Wind Speed (mph) Avg.	Max.
January	41.5	32.4	1.7	8.54	17.26
February	34.2	27.7	1.5	6.90	11.51
March	68	39.9	1.7	9.21	23.02
April	33.8	28.4	1.17	5.95	10.36
May	74.8	41.7	.56	9.20	17.3
June	82.4	50	.49	7.37	12.77
July	77	62.6	1.89	6.33	17.26
August	93.2	63.1	2.42	7.25	20.82
September	78.8	48.2	1.51	8.17	17.26
October	69.8	41	1.16	5.64	11.39
November	78.8	48.2	1.32	8.17	17.26
December	71.1	30.2	1.73	7.37	12.77
Year	**66.95**	**42.78**	**1.43**	**7.51**	**15.75**

*Source: National Weather Service & 1999 The Weather Underground, Inc. *Location: Prescott, AZ.*

2.11.1 Wind Information

The general wind pattern in Arizona is from west to east, but individual sites are subject to highly localized wind patterns. Although the FAA requires 10 or more years of data, specific wind information for Bagdad Airport is unavailable. According to the Western Regional Climate Center of NOAA, the closest airport with five or more years of wind data available is Prescott's, Ernest A. Love Field.

Wind data used for Bagdad Airport was generated over a ten-year period from 1974-1984 from Prescott. Based on the data, wind coverage for Runway 05-23 is approximately 82.6 percent at 12 mph and 85.82 percent at 15 mph. See the Airport Layout Plan for additional wind information.

2.12 SUMMARY

This chapter examined those conditions, factors and issues that will have the greatest effect on the future of Bagdad Airport including airport setting, airport development history, existing airport facilities (both airside and landside), airspace, air traffic and socioeconomic characteristics.

The next chapter examines the current aviation demand experienced by the airport and how this demand can be expected to change in the future. Projections of aviation activity through the year 2017 will provide the necessary guidelines and requirements so important for long-range planning. ✈